

Chapter 17. Stormwater Management & Drainage Standards

17.1. Stormwater Drainage and Retention Standards.

The proper conveyance, storage and release of stormwater are critical to the function of the PPGN site and the relationship to regional flood control behavior. Drainage facilities, including retention basins, storm drains, mains and headwalls, channels, drywells and sub-surface storage, shall be designed compliant to City of Mesa practice and code while also designed as a supplement to enhance surrounding aesthetic features.

17.1(a) General Information. The City of Mesa Drainage Design Standards and the Uniform Drainage Policies and Standards for Maricopa County as published by the FCDMC (“Drainage Standards”), as may be amended, are applicable to all development within PPGN. Modifications to the provisions of the applicable Drainage Standards may be proposed during the DUP, Site Plan and Design Review, or Subdivision Plat processes and are subject to approval by the City Engineer or designee following the procedures outlined in Chapter 3.12.

17.1(b) Drainage Reports.

17.1(b)(i) Master Drainage Report. A Master Drainage Report for PPGN has been reviewed and approved by the City of Mesa and is included as Appendix 19.6. The Master Drainage Report considers the design for the development of the overall PPGN Community Plan as well as the possible influence that drainage criteria may play in phasing for the development of the individual DUs. The Master Drainage Report focuses primarily on the existing surrounding regional conditions, the proposed regional conditions with the development of PPGN among other planned regional improvements, and a broad analysis of the PPGN drainage areas, runoff, retention, and storage bleed-off strategy. Updates to the Master Drainage Report may be required by the City Engineer if significant changes are made which would influence assumptions made to prepare the Master Drainage Report.

17.1(b)(ii) DUP Drainage Report. A more detailed drainage analysis for each DU will be provided at the time of DUP review and approval. The DU Drainage Report will be prepared in conformance with the criteria outlined in Chapter 3.7(a)(v) and will address final layouts specific to that particular DUP and the means and methods to appropriately address the DU’s particular drainage conditions.

17.1(b)(iii) Final Drainage Reports. Final Drainage Reports are required for specific individual developments to ensure compliance with the Master Drainage Report, the DU Drainage Report, and to identify significant changes in infrastructure needed to serve the parcel.

17.1(c) Stormwater Management.

17.1(c)(i) Retention Methods. The implementation of the Community Plan for PPGN may warrant modification to the City's standard surface storage retention requirements to allow retention basins that are decentralized and distributed across the project site as a compliment to the proposed higher density neighborhood design concepts. Traditionally, the City of Mesa has required retention to be accommodated in a limited number of well defined, irregular shaped areas and multiple small retention basins are not acceptable. The development environments proposed with PPGN may require retention basins distributed across the site that may be of smaller size, regular shape and varied depth.

The following are anticipated modifications to the City's Engineering and Design Standards for retention basins subject to approval by the City Engineer pursuant to the procedures in Chapter 3.12.

1. Maximum depths and side slopes of retention basins may vary from city standards. Aesthetic features may be incorporated into the retention basin design so long as safety concerns are addressed. Details of facilities are subject to the approval of the City Engineer.
2. Alternative storm drain inlets and outlets may be approved by the City Engineer. The details may be approved at the DUP, Site Plan, or subdivision level processes by the City Engineer.
3. Alternative storm drain materials may be approved by the City Engineer with proper justification and analysis provided. This may be approved at the DUP, Site Plan or subdivision level processes by the City Engineer.
4. Alternative detailed channel designs may be approved by the City Engineer, with concurrence from the Planning Director, with proper justification and analysis provided.
5. While the PPGN development intends to use a low flow bleed-off system to dispose of retained stormwater, a permanent solution to disposal of stormwater retention may be accomplished by the construction of drywells. Percolation rates for drywells will be based on standards approved by the City Engineer. Drywells must be maintained and refurbished by the Master Developer or other designated entity when they cease to function properly.

17.1(c)(ii) Retention Basin Design Standards. The following retention basin design standards shall be applied to all retention basins within PPGN.

1. In both residential and nonresidential developments, the basin design shall be incorporated with the overall site plan by providing access, landscape, and amenities.
2. Retention basin layout shall be relative in shape to the design of the proposed architecture and site plan, and designed as an integral part of the landscaping theme, and shall not take on the appearance of a ditch. The depth of water in retention basins shall not exceed 3 feet 6 inches.
3. A 3-foot transition area shall be provided where the retention basin side exceeds 6-to-1 slope measured horizontal to vertical and basin is adjacent to right-of-way and sidewalks. Transition area shall be less than 6-to-1 slope. A maximum 4-to-1 slope allowed in other locations.
4. Retaining walls shall not exceed 50 percent of the basin perimeter (measured at the high waterline). The maximum height of retaining walls is 18 inches.
5. Retention basins along public streets that incorporate retaining walls shall utilize catch basins and pipes to collect and direct water to the bottom of the basins. Where retention basins occur along arterial streets, berms shall be provided along 33 % of basin frontage. Berms are to be 4-to-1 (horizontal-to-vertical) maximum slope, 2 feet high. Within public right-of-way maximum slope is 6 to 1. Berms shall not obstruct run-off from streets into the retention basin.
6. Landscaping shall be provided in all areas of the retention basin (slope, top, and bottom).